Addressing mealtime behaviours of children with autism spectrum disorders in schools: a qualitative study with educators in Mumbai, India

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This study was conducted to explore the experiences of educators with mealtime behaviours of children with a diagnosis of Autism Spectrum Disorders (ASD) in schools, and to explore the strategies undertaken in schools to improve nutrition among these children. In-depth interviews were conducted with 13 educators of various special schools across Mumbai. They described their experiences with 3–11 year-old children with a diagnosis of ASD. Four themes emerged from this study: reasons for disruptive mealtime behaviours, using mealtimes as opportunities for indirect learning, strategies used to avoid disruptive mealtime behaviours, and school policies regarding food and nutrition. The presence of sensory stressors, changes in break-time schedules, and inability to communicate hunger were identified as main reasons for disruptive mealtime behaviours in the classroom. Strategies to tackle these behaviours were discussed. Most educators reported that their school followed a strict 'no junk-food' policy. The perspective of educators is important to understand the mealtime behaviours of children with ASD in school settings. The initiatives taken at the school-level are valuable as they provide a different approach and diverse strategies that may work to improve the food intake and nutrition of children with ASD.

Keywords: special education, nutrition, sensory integration, school policy, developmental disabilities, food intake

Introduction

Autism Spectrum Disorders (ASD) have been defined and understood in different ways since Leo Kanner (1943) first used the term. Several decades ago, the Diagnostic and Statistical Manual Third revision (DSM-III) (American Psychiatric Association 1980) changed how Autism was understood by acknowledging it as a pervasive developmental disorder. In a big change from previous versions, the DSM 5 (Fifth revision) (American Psychiatric Association 2013) introduced one term – 'Autism Spectrum Disorders' to refer to multiple neurobiological disorders.

Feeding/eating behaviour lies on a continuum from typical behaviour (that which provides sufficient calories to support weight gain and linear growth in addition to having decent nutritional value) to maladaptive behaviour (i.e. that which interferes with optimum nutritional intake thereby impeding weight gain or leading to excessive weight gain, and affecting health, and development). Across this continuum, these feeding/eating problems can range in severity from subclinical levels (e.g. selective eating, undereating, overeating) to clinical extremes (e.g. chronic food refusal, binge eating) that can lead to medical conditions, like failure to thrive and obesity (Budd and Chugh 1998).

Feeding problems occur in 60% to 90% of young children with ASD as against a stark contrast of 25% to 35% of neurotypically developing children (Kodak and Piazza 2008, Bruns and Thompson 2011). In another study, Johnson *et al.* (2014) reported that many children with ASD have co-occurring feeding problems, with reported prevalence rates of 46–89% compared to a rate of 25% for typically developing children. In a review of 44 research studies on eating and related difficulties in children with ASD, the most common concerns highlighted were restricted dietary variety, food neophobia, food-refusal, limiting diets based on texture, and a susceptibility to being overweight (Marshall *et al.* 2014). While similar behaviours are reported in young, typically developing children and those with other developmental disorders, the high frequency and persistence of these behaviours well into late childhood appear to be

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uniquely characteristic of ASD, where even the rate of occurrence and intensity of problematic eating behaviours were higher in children with ASD than in other groups with disabilities (Lane *et al.* 2014)

It is important to consider the perceptions of people interacting with these children about their feeding/eating problems. For children who are of school age, the main people in their environment are their family members, and their educators. However, in most studies, parent/caregiver self-report measures have been the main source of information to identify and understand feeding/eating problems in children with ASD. The focus has been on their perspectives and experiences at home (Martins *et al.* 2008, Marquenie *et al.* 2011, Ausderau and Juarez 2013).

It is essential to explore the perspective of educators to understand the eating behaviour of children with ASD in school settings. There have been studies with educators on many topics including: provision of services for children with ASD in public schools (Hess *et al.* 2008), inclusive education practices (Sansosti and Sansosti 2012), and multicultural perspectives on teaching children with ASD (Wilder *et al.* 2004) among others. All of these studies have focussed on academic aspects, and to a certain extent, behavioural aspects of teaching children with ASD. There has been a study that has documented evidence regarding feeding disorders of children with ASD, in school settings (Twachtman-Reilly *et al.* 2008). These authors identified and outlined specific modifications that could be used by school-based Speech Language Pathologists as part of their treatment of feeding difficulties in the students with ASD. They discussed the need to integrate these modified techniques with traditional feeding therapy. Likewise, in another study, a classroom-based 'Sensory Snack Time' intervention was developed to help children with ASD aged 4–10 years, manage sensory based aversions to food. This led to a reduction in food selectivity among these students (Galpin *et al.* 2018). In one study, the authors described using Applied Behaviour Analysis (ABA) techniques to design a group-based eating intervention for children with ASD in two preschool special education classrooms. They reported that by means of a character called 'Esther the Eater', children with ASD were taught to expand their feeding choices (Freeman *et al.* 2019). Evidence-based treatments for both core symptoms of ASD and associated clinical features require a multi-disciplinary approach (Politte *et al.* 2015). However, in the feeding context, behavioural interventions using ABA techniques are reported to be the most common and only empirically supported techniques to improve inappropriate feeding/eating behaviour in children with ASD (Silbaugh *et al.* 2016).

To the best of our knowledge, there have been no other published studies, exploring educator experiences with mealtime behaviours of children with ASD. This is a research gap that needs to be filled. This study was conducted with the objective of exploring the mealtime experiences of educators in school settings with children with a diagnosis of ASD; and to explore the strategies undertaken by them, and in their schools to improve food intake and nutrition among these children.

Materials and methods

This was a qualitative study conducted with 13 educators of various special schools (trust schools/private schools) across Mumbai, India. A qualitative interpretivist approach was used for this study, because it is the nature of this mode of inquiry to seek to understand a phenomenon and to interpret meaning within the social and cultural context of the natural setting (Schwandt 1994). Educators working with children aged 3–11 years with ASD were chosen for this study. A purposive sampling method was considered appropriate for this study, because it gives the researcher the flexibility to use his/her judgment to choose people who, by virtue of knowledge or experience can, and are willing to provide the most relevant information pertaining to the research questions (Bernard 2017)

Procedure

The process of data collection commenced after receiving ethical approval from the Institutional Review Board of the Tata Institute of Social Sciences, Mumbai, India. For the interviews with the educators, the researcher approached special schools in Mumbai. The purpose and objectives of the study were explained to them, and in some cases, to the school's management. Educators that provided written informed consent were interviewed.

In-depth interviews were chosen as the mode of inquiry for this study, and were conducted with 13 educators (Table 1). At the root of in-depth interviewing is an interest in understanding the lived experience of other people, and the meaning they make of that experience, allowing us to put behaviour in context, and providing access to understanding their actions (Seidman 2013). The interviews with educators covered various aspects, such as: their roles and responsibilities in school, their experiences with mealtimes in classrooms with children having ASD, strategies adopted to address eating concerns in children, their beliefs about reasons for disruptive mealtime behaviours, and their school's policy regarding food and nutrition. The first author conducted the interviews and used an unstructured interview guideline to cover the various topics during the data collection process. Interviews were audio-recorded with the consent of the participants. Barring two educators, all other interviews were conducted within the school premises. Data collection happened

Table 1. Profile of respondents.

Educator	Type of school	Years of experience	Profile of class	Key responsibilities
E1	Private	5	6 students in class, with diagnoses of ASD, mild Cerebral Palsy (CP), Attention Deficit Hyperactivity Disorder (ADHD) and/or Learning Disabilities (LD).	Teaching, class management
E2	Trust	4	12 students of different disabilities of which 3 had ASD	Teaching children in the age-group of 3–18 years For younger children: skills like toileting, feeding/eating, development of gross and fine motor skills For older children: social skills and basic academics
E3	Private	15	5, all with ASD	Teaching; curriculum development
E4	Between jobs at the time of interview, last job was at a private school	20	ASD, CP, Intellectual Disability (ID), and a few with LD	Teaching across age-groups
E5	Trust	3	8 children with diagnoses of Down's Syndrome, ID, ASD	Teaching; class management
E6	Trust	11	5 children , all with ASD	Teaching, class management
E7	Trust	11	Mainly ASD	Teaching; administrative duties
E8	Private	5	ASD	Developing Individual Educational Plans (IEP) per child; One-on-one teaching for children basis IEP across age-groups; Psychological counselling
E9	Trust	6	Mainly ASD	Coordinator, teaching across age-groups
E10	Trust	12	12 students with different disabilities of which 3 had ASD	Teaching; class management
E11	Trust	10	5 students with ASD	Teaching; class management
E12	Trust	15	Mainly ASD	Coordinator; teaching across age-groups
E13	Private	10	ASD, Global Developmental Delay (GDD)	Part-time educator handling various age groups

over a period of six months, from March 2017 to September 2017. Data was collected till point of saturation, where the data collection process no longer offered any new or relevant data (Dworkin 2012).

Data analysis

In this study, data analysis happened simultaneously with data collection, wherein, the data gathered and analysed, shaped the ongoing data collection. Qualitative data analysis is an iterative process. The researcher collects data, observes facts, and then reflects on the gathered information with an aim to understand it. Based on the data collected, the researcher can go back and refine questions, develop hypotheses, and pursue emerging avenues of inquiry (Pope *et al.* 2007).

Audio-recorded in-depth interviews of educators were transcribed. Interviews conducted in Hindi were translated to English and then transcribed. The transcripts were manually analysed. Coding was done to check for emerging themes from the data. In this study, thematic analysis was done through the process of coding in six phases as described by Braun and Clarke (2006).

Results

Results are presented in relation to the objectives as follows: (i) mealtime experiences of educators with children with ASD in school settings; and (ii) strategies undertaken by them, and in their schools to improve food intake and nutrition among these children. Four themes emerged from the data, of which the first two themes were pertaining to the first objective. Theme 3 pertained to the second objective. Theme 4 highlights school policies on health and nutrition and relates to the second objective. The themes identified are discussed below and their content is illustrated with quotes from the respondents. The identified themes are based entirely on the reports by the participants.

Mealtime experiences of educators with children with ASD in school settings

Reasons for disruptive mealtime behaviours

Educators felt that the main trigger for disruptive mealtime behaviour was situations where the children did not like the food item sent in their snack/lunch boxes. In these cases, they chose to remain hungry, and they felt that these led to behavioural issues. It was also

stated that some children got upset if there was a change of food item in their snack/lunch boxes, from what they were used to eating routinely.

> When they open their dabba[1] and it doesn't excite them or if it is something new, like if they are used to mixed rice in their dabbas and suddenly they see noodles, they are not able to take it. Those are the times these behaviours come, where they close their box and refuse to eat, get up from the chair and start running around inside the class, pulling other children's lunch boxes and disturbing them. (E3, private school)

In addition, children with ASD were reported to struggle with being flexible with their routines. So, any change in their break-time schedule was especially likely to cause behavioural issues. Educators also reported that many children with ASD had difficulties with sensory integration, which led to disruptive mealtime behaviours. In classroom settings, sensitivity to smells and sounds among children were reported to be of particular concern. In many cases, children have been known to go and smell the food from their classmates' snack/lunch boxes, and in some extreme cases, if the child didn't like the smell of the food, they threw it down. Children with high auditory sensitivity were reported to avoid eating during breaks when their classmates were being noisy. Educators said that these children often just closed both their ears with their hands, and in order for them to start eating, the noise in the classroom had to subside. Children with tactile sensitivity were reported to eat independently only if their snack/lunch boxes had dry snacks or finger foods.

> … definitely they have sensorial issues … they like only grainy food, or they like only pastey food, or they may not like to see pieces floating around in food-like they may not like kadipatta,[2] or they may not like tadka,[3] or they may not like to see other colours in food. (E13, private school)

Some educators felt that communication deficits in a child with ASD were a likely cause for disruptive mealtime behaviours as well. They felt that the children did not know how to express their hunger. This was reported to cause restlessness and aggression in the classroom.

It was also reported that some children did not understand the concept of eating different components of an Indian meal together, which led them to avoid eating adequately.

> If there are 3 different dabbas– 1 with rice, 1 with dal,[4] 1 with sabzi,[5] she eats from each dabba separately.she sometimes eats from one dabba alone and says she has finished eating.doesn't realize she has to mix all of these and eat. (E3, private school)

Mealtimes used as opportunities for indirect learning:

Educators said that in a mixed group of students, often children with ASD needed extra encouragement to participate in class activities or discussions. Educators reported that mealtimes were a good informal setting to work on children's communication skills. They tried to facilitate conversations between their students during mealtimes, by encouraging children to talk to each other, and to the teaching staff.

> I spend time during the break with them. I start by asking, 'What do you have in your dabba?', 'Can I see?', 'What is there?', 'Oh! The fruit is healthy', 'Oh! You got French fries, that is junk food!' …. So, there is lot of learning happening and now after I finish my conversation I tell them, 'Now it's your turn to ask questions'. So they will ask the same question to me also like, 'what are you having for snack?'. So, there is a conversation happening and at the same time they are also seeing what others have in their dabba, because earlier, they were focussed only on their dabba and they didn't even look at others. Now I would say that it has come to a point where they say, 'I have got orange, she has mango, this person has got apple ….' They have started observing things, what's happening around. (E3, private school)

Educators also said that there were many children who still needed help with independent self-feeding, and that they used these intervals to teach them that. They reported that they also used snack and lunch breaks to teach children about mealtime etiquette. Students were taught to lay the table/arrange their boxes on the table, place a napkin on their laps, and use a spoon. Students were also encouraged to share their food with their peers, thereby working on their social skills. Educators felt that when children saw their friends eating something that they usually avoided, they also wanted to try and experiment eating it. They also felt that children with ASD sometimes showed lesser disruptive mealtime behaviours in school than at home because of positive peer-group modelling.

> When they see their classmates and friends eating properly, it develops discipline in them.they understand that they need to sit and eat food properly … (E11, trust school)

Strategies undertaken by the educators to improve eating behaviour among children with ASD

Educators reported that they tried maintaining a consistent, soothing environment in the classroom to avoid stress. This meant taking measures like assigning specific places to children, seating them next to children who would not trigger behavioural issues in them, or ensuring that there are no loud noises in the classroom during lunch.

> We play calming, soothing music in our classrooms during breaktime. (E1, Private school)

Educators said that they tried their best to maintain consistency even in timetables, without any unexpected changes in routine or activities, including break-times. If for some reason, there was a change in break-time, however small, these were communicated in advance to the child, so that they were prepared for this change.

> If we interchange timings for activities, we change it accordingly in their daily visual schedules, so that when they look at it in the mornings, they know in advance … (E12, trust school)

In case food refusal/selectivity was perceived to occur as a result of sensory integration difficulties, they helped children to overcome those during speech/occupational therapy sessions in school. One educator spoke of their school having a cooking lab, with small cooking activities planned for their children a few times a week, for them to get accustomed to various smells, tastes and textures, and gradually overcome their sensitivity to these.

Some educators used a 'first-then' strategy in schools to improve food variety of children with ASD in schools. This meant offering a problem food first, and if the child finished it, they could eat the preferred food after. They also reported that they provided counselling to parents about the food sent to school, so that their child shows lesser food refusal or discomfort while eating food. Some reported that they communicated with the parents if they felt that changes needed to be made in the food that was sent for the student, in terms of the quantity of food sent or the way it was prepared.

> If child refuses to eat vegetables when served as roti[6]-sabzi, I ask parents to try sending the same thing as paratha,[7] where the vegetables would be mashed, and child is less likely to pick vegetables out and keep them aside… (E10, Trust school)

School policies regarding health and nutrition

All educators reported that their school followed a strict 'no junk-food' policy, and that they communicated this to the parents regularly. Many schools made it compulsory for children to bring one fruit daily. Some educators shared that a strict 'no junk-food' move was not very successful, when it was initially implemented in their schools because several children with ASD were resistant to changes in their routine. If they were habituated to particular foods, e.g. chips in their snack boxes, which the school had now restricted, these children refused to eat anything else. Thus, educators described that the 'no junk-food' rule had to be phased in gradually. A few educators also mentioned that they themselves followed this rule, and brought healthy food in their lunch boxes. This way, the behaviour could be modelled for the children.

> Our school is one of the schools that really promote healthy food.and we teachers also bring apple and poha[8] and all that, because we want to be role models, you know. because what goes in, is so important for any human to function. We in fact have a nutritionist where we recommend that parents talk to her.We are very particular about that. Even our whole school meet, we have cut-fruits and nimbu pani,[9] not samosas[10] and vadapavs[11] or anything. So, to that level, even as teachers, we follow that. Our head of school is very particular about that.and he has made sure that all of us stay healthy. (E3, private school)

Some educators revealed that their schools encouraged parents to follow a Gluten Free-Casein Free (GFCF) diet for their children. This was because they believed that there could be certain components in wheat and milk that triggered behavioural issues in children with autism. Two educators said that their school advocated GFCF diets for all children with special needs, and not just for those with ASD.

> For all kids, the diet mattered. Whether there was wheat intake, or milk intake, it mattered.So the first thing we did was to remove wheat and milk from their diets.we provided gluten free-casein free lunch in the school. (E4, private school)

Discussion

Feeding/eating problems are a common occurrence in children with ASD. Despite that, most studies have only considered parental or caregiver perspectives to understand mealtime experiences with these children, and this has taken place predominantly in residential settings (Martins *et al.* 2008, Marquenie *et al.* 2011, Ausderau and Juarez 2013). Considering that children spend a substantial part of their day in school, it is important to study feeding/eating behaviour in that setting. To the best of our knowledge, there have been limited studies looking at mealtimes in children with ASD in school settings (Twachtman-Reilly *et al.* 2008, Galpin *et al.* 2018, Freeman *et al.* 2019), and most of these have been intervention studies, and have not focussed on educator perspectives. Moreover, there are no studies on eating challenges for children with ASD in India. Thus, the present study contributes to this limited body of research and fills the research gap, by providing information about educators' mealtime experiences with children with ASD in schools. School policies regarding food and nutrition are also discussed for a few special schools in Mumbai, India.

There was general consensus among the educators that mealtime behavioural problems were common in children with ASD, even in the school setting. There were several reasons reported that lead to behavioural challenges. The presence of sensory stressors in the classroom was reported as main triggers for mealtime behavioural problems. This was not just limited to the sensory attributes of the food that the child was eating (e.g. texture or taste of the food), but was also related to the sensory sensitivities of the child to his/her environment, e.g. a loud noise in the classroom, or the smell of food that some other child was eating. Other studies have also documented relationships between difficulties with sensory integration and mealtime behavioural issues in children with ASD (Lane *et al.* 2014, Zobel-Lachiusa *et al.* 2015, Padmanabhan and Shroff 2018). Eating is a multisensory experience. Feeding/eating problems in children with ASD are related to multi-sensory processing issues, sensory processing deficits related to endurance/tone, modulation of movement affecting activity level and emotional and social

responses (Crasta *et al.* 2014). When there are difficulties with these, it can lead to food refusal, anxiety, non-compliance, or other behavioural issues during mealtimes. It may be useful to consider the effect of environmental factors, such as, the space around the meal area, lighting, noise level, and even seating, for children with ASD, during mealtimes. In addition to the sensory properties of the food, these factors may also contribute to sensory overload or disruptive mealtime behaviours in these children. Certain educators in this study reported that they made sure to reduce sensory stressors and made certain physical changes in their classrooms to facilitate easier mealtimes for children with ASD. Cermak *et al.* (2010) suggest that strategies like dimming the light in the room, providing deep pressure through a weighted lap pad, or using calming auditory stimulation can minimise the effects of overwhelming stimuli, and be beneficial to children with sensory sensitivity. These are compounded by difficulties among children with ASD in communicating or expressing their hunger. Use of sensory strategies can be used as an alternative or complementary approach to the most commonly used behavioural interventions to enhance food acceptance and reduce undesirable mealtime behaviours (Marshall *et al.* 2015). Similar to what was reported by the educators in this study, other studies have also documented the employment of games and activities in classrooms to support sensory integration in addition to other strategies with the aim of reducing feeding difficulties and improving food variety in children with ASD (Twachtman-Reilly *et al.* 2008, Galpin *et al.* 2018).

Changes in routine were reported as the other major cause for mealtime behavioural problems in the classroom. This meant both changes in break-time schedule, or a change in the food item that was sent in their lunch/snack box. Dickie *et al.* (2009) reported that for children with ASD, issues related to food were not limited to just sensory aspects of the food, or having the food item on their hands or tongue, but were also dependent on aspects outside of sensory domains such as predictability, routine, and novelty. Children with ASD often struggle with being flexible, which can translate into specific mealtime preferences or a 'need for sameness'. This was one of the reasons that some schools found it difficult to enforce their 'no-junk food' policy initially. The educators in this study mentioned strategies like communicating to the child in advance regarding a change, or using visual schedules to prepare them for transitions. Visual supports can help bring in structure, routine and sequence that many children with ASD need to be able to carry on their daily activities (Rao and Gagie 2006), and this may be an effective way of helping children with ASD cope and adapt to changes. In their meta-synthesis on everyday strategies used by parents to manage problem behaviour in children with ASD, O'Nions *et al.* (2018) record that picture schedules, visual reminders, and communicating in advance to the child regarding changes were some key strategies employed to provide structure, routine and maintain familiarity.

It appeared that positive reinforcement strategies used by educators were helpful in improving food acceptance, and thereby, dietary variety. They did this by ensuring that the child eats the food that they dislike first, with the consequence that s/he can then eat something else that is liked, or can do any activity that s/he enjoys. Reinforcement learning strategies come under a structured and systematic treatment called Applied Behaviour Analysis (Schuetze *et al.* 2017). They have been documented as important techniques to increase the frequency of social and communicative behaviours and to reduce or minimise atypical behaviours for children with ASD (Virués-Ortega 2010, Dawson and Burner 2011). These strategies, may be useful even in the feeding context in order to minimise disruptive mealtime behaviours, and could be replicated in other settings as well.

Notably, when the educators were asked to talk of their mealtime experiences with children having ASD, they also described how they used mealtimes as opportunities to teach other skills including sharing of food, communication, and mealtime etiquette. Additionally, using mealtimes to foster sharing of food with their peers can positively influence children to improve dietary variety. Many of the educators mentioned that because of positive peer modelling, there was improvement in the variety of foods consumed by children with ASD. Watching a peer enjoy a food and receive praise frequently may encourage the other children in the class to eat the target or the 'problem' food (Freeman *et al.* 2019). Studies of children's food acceptance have indicated that repeated opportunities to taste unfamiliar foods results in increased liking and consumption (Cooke 2007). Benefits of peer-modelling and peer-mediated interventions for children with ASD have also been discussed by other researchers (Watkins *et al.* 2015, Kamps *et al.* 2017, Freeman *et al.* 2019).

Schools are an effective and efficient medium to reach a large section of the population including children, parents and the wider community (Pérez-Rodrigo and Aranceta 2001). Thus, it is important to understand school policies with respect to food and nutrition for children with ASD. In this study, there was only one school that made it compulsory for all children to eat food that was provided in the school. All other schools gave parents the flexibility to send a snack and/or lunch from home. However, all the educators interviewed consistently reported that their schools followed a strict 'no junk-food' policy. This meant that any food which was high in refined carbohydrates, sugars or fat like: chocolates/candies, chips/wafers, instant noodles, were

not allowed in school. Instead, they encouraged children to bring healthy, home-made snacks and lunch, including making it mandatory to bring a fruit daily. This is a welcome initiative considering that several studies have highlighted that fruit refusal is common in children with ASD (Emond *et al.* 2010, Malhi *et al.* 2017, Padmanabhan and Shroff 2018). Many educators also reported that they counselled parents on healthy food options for children, or modifications that could be made to the food that was sent to school. The benefits of promoting healthy food choices at school may translate to better eating habits outside of school (Bell and Swinburn 2004), and may also play a significant role in ensuring that healthy eating behaviour is practised into adulthood (Drummond 2011). One teacher in this study discussed that she used cooking as an activity in her school to de-sensitize children with ASD to various sensory stimuli, particularly smell, texture and taste; and improve acceptance of different types of food. Introducing cooking lessons and teaching children basic meal preparation are an important way of enhancing functional life skills. It empowers children to make healthy individual choices (Drummond 2011, Caraher *et al.* 1999).

From this study, it appeared that the GFCF diet was the most commonly advocated and practiced special diet, specific to the ASD context. However, different schools had different opinions on the usefulness of the GFCF diets for children with ASD. Some of the schools included in this study insisted that all the students in their school follow a GFCF diet, including children who did not have an ASD diagnosis. While studies by Knivsberg *et al.* (2002) and Cornish (2002) reported improvements in children with ASD after following a GFCF diet, studies by Johnson *et al.* (2011) and Elder *et al.* (2006) did not report statistically conclusive improvements in symptoms. Piwowarczyk *et al.* (2018) conducted a systematic review of 6 randomised control trials that were done to check the efficacy of GFCF diets for children with ASD. They concluded that there was little evidence to prove the usefulness of GFCF diet in improving ASD symptoms. Often, GFCF diets are commonly sought as treatment options for children with ASD, especially to heal gastrointestinal symptoms, based on anecdotal reports, even though there is insufficient evidence in medical literature to support this diet (Politte *et al.* 2015). Hence, unless the children were identified as being allergic to gluten, casein, or both, researchers felt that a GFCF diet may put further food restrictions on the children, which is not desirable considering their limited food repertoire (Zimmer *et al.* 2012, Bandini *et al.* 2010, Emond *et al.* 2010). The authors of this article support this recommendation on avoiding the enforcement of a specific diet unless medically necessary. It may be useful to educate schools and educators to exercise caution before actively advocating for a GFCF diet and on the possible consequences of nutritional deficiencies in these children. Additionally, schools can be given information about the effectiveness of ABA techniques that improve the diversity of children's food choices (Silbaugh *et al.* 2016).

To conclude, it appeared that there are multiple inter-related factors affecting mealtime behaviours of children with ASD in schools. It was understood from the educators that each child with ASD presents with a different set of characteristics, behaviours and challenges with respect to feeding/eating. Educators and other professionals tackle these by means of different strategies, which are highly individualised. The results of this study also reveal that more awareness is required regarding common presentations of feeding disorders in children with ASD. Hence, the provision of general information regarding feeding/eating challenges, and how they could be tackled would be useful in early identification and treatment of ASD.

The main strength of this study is that it is the first qualitative study from India exploring the perspectives of educators regarding mealtime behaviours in children with ASD in schools using an iterative process. Strategies used by educators that are unique to the Indian context are described here. It also gives insights on some of the policies in special schools in Mumbai regarding nutrition. The limitations of this study are that the researcher may have missed asking about other aspects of the educators' experiences that may have impacted the children's eating/feeding behaviour. Although in-depth interviews with educators yielded rich material, in this study, the authors relied completely on self-reports. Future research could combine self-reported practices with observations of everyday practices of educators in classrooms. Ultimately, this study was limited to the perspective of the educators as it was not possible to ask questions to the children about their mealtime experiences. Also, the present study explored educator perspectives only from a single culture. The findings here may not be representative of practices of all educators working with children with ASD. However, the purpose of qualitative research is to give an in-depth understanding of a specific topic, rather than to make generalisations (Merriam 2002). Future directions for this research could include a more expansive design addressing the diversity of geographic locations and exploring multicultural variations in educator practices with mealtime behaviours of children with ASD in school-based settings.

Nevertheless, the findings of this study present a deeper understanding of the mealtime challenges an educator can face in a classroom with children with ASD. The initiatives taken by the educators and at the school-level are important strategies that might be

useful to other professionals working with children with ASD.

Notes

1. Dabba in Hindi refers to a box. In this context, it could be understood as either the snack box or the lunch box.
2. Curry leaf.
3. Tempering of spices on food, a technique common in Indian cuisine.
4. Lentil gravy.
5. Cooked vegetables.
6. Flat bread.
7. Flat, thick bread which usually has a stuffing of vegetables like potato, cauliflower, green peas, onion, or cottage cheese.
8. An Indian breakfast item made of flaked rice and vegetables.
9. Lemon juice.
10. Fried Indian snack consisting of a triangular pastry case, filled with mashed potatoes.
11. Indian snack consisting of potato fritter coated in chick-pea flour, served inside a bun.

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Declaration of interest

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